NURSE REPORT

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NURSE REPORT #24 FARM WORKER'S SKULL FRACTURED BY EXPLODING BRAKE CDHS(OHB)-FI-93-005-24

Summary

Workers were harvesting almonds. The trailers they used to haul the almonds were leased. Moving these trailers was to be done only by the company owning the trailers, or the farmer could use a forklift. In order to save time, the farmer told his son and a farm worker to move the trailer without using a forklift.

The son and farm worker crawled under the trailer to unlock the brakes. They loosened the ring clamp from the outside housing of the brakes. This released a loaded spring, which sent the top of the outside housing flying into the farm worker's forehead.

Neither the farmer nor co-workers were trained in first aid. The farmer put the injured farm worker in his pickup truck, called 911, and drove him to a nearby road. An ambulance took him to a trauma center, where he was admitted with a broken skull.

How could this injury have been prevented?

-Employers should not ask workers to do tasks which they have not been trained to do.

-Equipment should be designed so that workers will not be exposed to hazards.

-Employers should have written safety programs. These programs can help workers and employers identify hazards.

-At the work site, at least one person should be trained in first aid.

CASE 192-383-01 January 19, 1993

The NURSE (Nurses Using Rural Sentinel Events) project is conducted by the Occupational Health Branch of the California Department of Health Services, in conjunction with the National Institute for Occupational Safety and Health (#U06/CCU906031-04). The program's goal is to prevent occupational injuries associated with agriculture. Injuries are reported by hospitals, emergency medical services, clinics, medical examiners, and coroners. Selected cases are followed up by conducting interviews of injured workers, co-workers, employers, and others involved in the incident. An on-site safety investigation is also conducted. These investigations provide detailed information on the worker, the work environment, and the potential risk factors resulting in the injury. Each investigation concludes with specific recommendations designed to prevent injuries, for the use of employers, workers, and others concerned about health and safety in agriculture.

BACKGROUND

On September 2, 1992, NURSE staff received a written report of an agricultural injury from a Regional Trauma Center. On August 29, 1992, a farm worker was struck in the head by the outside housing to the brakes on a flatbed trailer. The injury occurred while the farm worker was attempting to deactivate the brake system to move the trailer. This trailer was leased from a trucking company. Deactivating the brake system was usually done only by the trucking company.

A nurse from the NURSE Project interviewed the injured farm worker in the hospital on September 2, 1992. The NURSE senior safety engineer discussed the incident with the farmer hired to harvest the almonds on November 2, 1992. The senior safety engineer was unable to inspect the trailer because the trucking company had removed it from the farm. NURSE staff also reviewed the injured farm worker's medical records and the Emergency Medical Services (EMS) records.

The California Occupational Safety and Health Administration (Cal/OSHA) was not notified and did not investigate the incident.

The incident occurred on a 200-acre almond orchard. The injured farm worker was employed by a farmer who was hired by the orchard owner to harvest and deliver almonds to a hulling and processing plant. He had been employed by this farmer as a full-time employee for seven years. He had never received any training from this farmer, and had not disassembled any brake systems in the past. The farmer who employed him did not have a formal written safety program for his harvesting operation, as required by Title 8 California Code of Regulations 3203 -- Injury and Illness Prevention Program. (As of July 1, 1991 the State of California requires all employers to have a written seven point injury prevention program: 1. designated safety person responsible for implementing the program; 2. mode for ensuring employee compliance; 3. hazard communication; 4. hazard evaluation through periodic inspections; 5. injury investigation procedures; 6. intervention process for correcting hazards; and 7. provide training and instruction.)

INCIDENT

On August 29, 1992, at approximately 7:30 a.m., a 32 year-old Hispanic male farm worker was connecting a conveyor system to pick almonds off the ground. Almonds are harvested with a machine which clamps an arm to the tree and shakes the nuts onto the ground. A sweeping machine then sweeps them into the rows between the trees. A picking machine then sucks them up and places them on a conveyor belt, which leads to a bin behind the picking machine. When the bin is full it is emptied into a trailer. The trailer is eventually taken by a trucking company to the hulling and processing plant.

In this incident, the farmer leased the trailers needed for hauling the almonds. The trucking company set up the trailers with the brakes activated, locking the wheels. The trucking company told the farmer to move the trailers with a forklift. If the farmer needed the brakes deactivated, he was to call the trucking company.

However, to save time, the farmer told his son and the farm worker to deactivate the safety brakes on a trailer, and to move it without using a forklift. They crawled under the trailer. Neither of them had ever deactivated a brake system. They did not know that a special bolt must be screwed into the top of the brake system's outside housing. This special bolt takes the pressure off a loaded spring, thus safely releasing the brakes.

The farmer's son began by unfastening the ring clamp which kept the metal (outside) housing of the brake together. With the top of the metal housing loosened, the loaded spring released and sent the top of the housing flying, striking the farm worker on his forehead above the left eye. According to co-workers, he immediately lost consciousness. Neither the farmer nor his employees had any training in first aid or cardiopulmonary resuscitation (CPR). The farmer placed the injured farm worker in his pickup truck, and drove him out of the almond orchard to a nearby road. He called 911 on his truck phone. The Emergency Medical Services (EMS) was en route at 8:05 a.m., and met the pickup truck at 8:14 a.m.

They found the injured farm worker conscious, nauseated and complaining of pain in his neck. He could not remember the incident. He had a five-inch laceration over his left eye, and open facial and skull fractures. (An open fracture is one in which the broken bones cut through the skin.) The paramedics gave him oxygen and started an IV. They immobilized him and applied a dressing to his open wounds. The injured farm worker was transported to the Regional Trauma Center, arriving at approximately 9:00 a.m.

The injured farm worker was admitted to the hospital, with a depressed skull fracture and a torn lining (dura) of the brain. A brain scan revealed a depressed fracture in the left orbital (around the eyes) and left frontal bones (forehead) of the skull. It also revealed swelling of the brain in the left frontal lobe. An x-ray of the cervical spine did not reveal any damage. He had surgery the following day to clean the wounds, remove bone fragments, and repair the dura.

Two days later the injured farm worker developed a fever of 102âF, and was treated with antibiotics to prevent infection. He spoke Spanish, and understood very little English. When the nurse from the NURSE Project visited him, he asked for help to explain the nature of his injuries and the medical treatment he was receiving.

The injured farm worker was released after eleven days in the hospital. He was taking anti-seizure medication and was instructed to wear a hard hat because another blow to his skull could result in severe brain damage (possibly death). Nine days after discharge, he returned to the neurological clinic for a follow-up examination. He complained of sleepiness. On December 11, 1992, almost four months after the incident, the injured worker contacted the nurse from the NURSE Project with questions about his anti-seizure medication. He told the nurse he was continuing to have severe headaches and vision problems. His physician estimates that he will be out of work for at least a year. **PREVENTION STRATEGIES**

1. Employers should have a comprehensive injury and illness prevention program.[1] If there had been a written and implemented injury and illness prevention program, the hazard of deactivating the brakes might have been recognized and this incident might not have occurred.

2. Employers should use a standard operating procedure where worker safety is the first priority. Employers should follow and instruct workers to always follow standard operating procedures. Instruction should be presented in a manner and in a language that workers understand. In this incident, the injured employee was asked to perform a task for which he had not received any training. Therefore,

he was not aware of the hazards involved in disassembling the brakes. Normal operating procedure called for the trucking company to deactivate the brakes. In this incident, the farmer instructed his son and the injured farm worker to bypass this procedure to save time. If the standard operating procedure had been followed, this incident might have been prevented.

3. Every field work crew should have a person certified in first aid and cardiopulmonary resuscitation (CPR) who is always present at the work site.[2] In this incident, no one was trained in first aid and there was no written procedure for handling emergencies. Field crews should have an adequate emergency response procedure which is written and followed; this would include training workers in handling emergency situations. If a person certified in first aid and CPR had been present, the injured worker would have received first aid more quickly and the risk of complications from the injury may have been reduced.

4. Injured workers should not be moved by anyone other than Emergency Medical Services (EMS) personnel, except in a life threatening situation. Although the employer called 911, the injured worker should not have been moved before the arrival of the EMS. The extent of the injuries sustained by the injured employee was unknown at the time of the incident. The improper movement of the injured employee could have resulted in more severe injuries and possibly permanent damage to the central nervous system.

5. Manufacturers of equipment should test designs with safety in mind before making them publicly available so that workers will not be exposed to hazards. In this incident, if the brake housing had been manufactured with an interlocking mechanism or one-way bolts, as is now being manufactured and sold, the employer's son would not have been able to dismantle the housing. This would have required the employer to follow standard operating procedure and call the trucking company to move the trailer, thus eliminating the risk of injury to untrained workers. The new design, using an interlock mechanism or one-way bolts, can only be dismantled in an authorized workshop.

1. Title 8 California Code of Regulations 3203 -- Injury and Illness Prevention Program.

2. Title 8 California Code of Regulations 3400(b): "In the absence of an infirmary, clinic or hospital, in near proximity to the workplace...a person or persons shall be adequately trained to render first aid."

Title 8 California Code of Regulations 3439(b): "There shall be at least 1 employee for every 20 employees at any locations with training for the administering of emergency first aid."